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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,433	07/16/2003	Takeo Ishibashi	402708	6921
23548	7590	06/28/2004		
LEYDIG VOIT & MAYER, LTD 700 THIRTEENTH ST. NW SUITE 300 WASHINGTON, DC 20005-3960			EXAMINER PHAM, THANH V	
			ART UNIT 2823	PAPER NUMBER

DATE MAILED: 06/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,433

Applicant(s)

ISHIBASHI ET AL. 

Examiner

Thanh V Pham

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) 9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>07/16/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of the first species that belongs to figs.1 in the reply filed on 04/15/04 is acknowledged. The election is not stated with or without traverse. The claims are amended and two new claims are added. Claim 1, the only independent claim, is generic. Applicant states that all claims read on the selected species. This is not found persuasive because the difference in the two sets of figures clearly shows that claim 8 reads on figs. 1 and claim 9 reads on figs. 2.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The requirement is still deemed proper and is therefore made FINAL.

2. For the above reasons, only claims 1 and 4-8 are examined in this office action.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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4. Claims 1, 4-5 and 8 are rejected under 35 U.S.C. 102(a) as being anticipated by Jang et al. US 6,362,093 B1.

Re claim 1, the Jang et al. reference discloses a method of manufacturing a buried wiring structure comprising: depositing an insulating film 18 on under-layer wiring 11; forming a first depressed portion 23 in the insulating film; applying a burying material 24 to the first depressed portion and on said insulating film, filling the first depressed portion, fig. 3; chemical mechanical polishing, col. 9, line 63, the burying material until the insulating film is exposed, leaving the burying material in the first depressed portion; forming a resist 26 having a pattern of a second depressed portion that overlaps the first depressed portion on the insulating film where the burying material is present; etching the burying material and the insulating film, using the resist as a mask, to form the second depressed portion, fig. 4; removing the resist and the burying material left after the etching; and depositing an electrically conductive material 30 in the first depressed portion and the second depressed portion, fig. 5.

Re claims 4-5, the method includes applying as the burying material an organic polymeric material having substantially the same etching rate as the insulating film, and the burying material contains no aromatic compounds, col. 9, lines 36-52.

Re claim 8, the first depressed portion is a contact hole and the second depressed portion is a wiring channel, the contact hole being deeper and narrower than the wiring channel, fig. 5, col. 1, lines 17-38 and col. 10, lines 3-65.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jang et al. as applied to claims 1, 4-5 and 8 above, and further in view of Jain et al. US 5,741,626.

The Jang et al. reference discloses substantially all of the steps of the instant invention but lacks an antireflective film on the insulating before forming the resist. However, the Jang et al. reference, col. 2, lines 25-30, introduces Jain et al. reference wherein "the ARC may be formed in any of several locations when forming the dual damascene structure", e.g., the ARC 46 formed with different material with the burying material 20 such that the burying material and the antireflective film are not soluble in each other in an alternate embodiment, figs. 9-15.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply an antireflective film on the insulating film before forming the resist as taught by Jain et al. into the process of manufacturing a buried wiring structure of Jang et al. because such a known step would be selected in order to improve the quality of the photolithography/etching applied afterward.

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Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh V. Pham whose telephone number is 571-272-1866. The examiner can normally be reached on M-T (6:30-5:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WP

TvP

06/22/04


Olik Chaudhuri
Supervisory Patent Examiner
Technology Center 2800